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PRECANCEROUS LESIONS OF THE ORAL CAVITY*

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It is very important for every member of the medical and dental professions to be familiar with these lesions, because, when present, they may be the beginning of a possible cancer. Proper treatment at this stage always accomplishes a cure. The dentist pays too much attention to the teeth, the nose and throat specialist's vision begins posterior or to the anterior pillar of the fauces. The old practitioner was interested chiefly in a coated, dry or moist tongue, or the blue line of lead poisoning along the gums, or the cyanotic appearance of patients with cardiac disease. For years, when surgeons examined the mouth, they found cancer in its last stages. It is remarkable for how many years leucoplakia excited little attention until cancer developed. It is only since the war that we really have become familiar with Vincent's angina, which is the most common cause of a sore mouth. Ulcer, wart, hypertrophied papillae at the base of the tongue, fibroma, adenoma of the labial glands, angioma have excited no interest of patient or doctor until the lesions have become malignant or large. In the older literature there are more references to geographic tongue which has no relation to malignancy, than to leucoplakia which is the chief predecessor of cancer. Ranula, a form of cyst in the floor of the mouth, which is not only very rare, but a very innocent lesion, is described in its three forms in all text books of surgery, and twenty-five years ago was the most common examination question. The possible relation of a loose tooth, gumboil, or epulis to the beginning of a malignant tumor of the jaw has been recognized only very recently, although I find it re-

corded as an uninterpreted fact in all the histories of malignant lesions of the upper and lower jaw and oral cavity, since the first history in the Johns Hopkins Hospital in 1889. Teeth are extracted, gumboils incised, swellings around the alveolar border incised or neglected without anyone giving the least thought to the possibility that these were signs of malignancy in its very earliest stages.

The X-ray Diagnostic Film. Frozen sections for diagnosis at the time of the operation for lesions of the mouth are made in but a few clinics of the world. Yet, the X-ray and the frozen section apparatus are essential instruments of precision for the proper diagnosis of lesions of the oral cavity which allow cancer to be recognized in its earliest stages, and guide treatment of all lesions of the oral cavity so that cures may be accomplished with the least mutilation. The salesmanship of the diathermy and coagulation cautery has been far better than that for the frozen section apparatus, and many clinics are provided with this expensive instrument which without doubt is one of the best methods of attack, when they are not provided with a frozen section outfit which is the real compass for the direction of the attack. Doctors and dentists should become familiar with the ordinary appearance and palpation of leucoplakia, Vincent's angina, fibroma, wart, papilloma, various types of ulcers, tubercular, suppurative; cancer: are as of irritation, subcutaneous nodules and cysts and adenoma, the different types of epulides, stomatitis, glossitis, fissured tongue, bulging teeth, the normal and hypertrophied papillae of the tongue, the normal and diseased appearance of the labial glands of the cheek, the changes of the appearance of the gum in pyorrhoea and Rigg's disease. These are the common lesions of the oral cavity. Gumboils, loose teeth, swellings of the alveolar border, swellings of the upper and lower jaw can be felt with the finger, but must be interpreted from the x-ray,

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or at the exploratory incision with a frozen section.

Leucoplakia. The patient sees the white patch, but does not feel it. Every dentist should become rapidly familiar with this callosity of mucous membrane of the oral cavity, which is like a scale of white enamel on the moist, red, mucous membrane of the mouth. Leucoplakia, with the rarest exceptions is only seen in the mouths of those who use tobacco in some form, including snuff, and, as a rule, the teeth are ragged and dirty. The great majority of patches of leucoplakia occur where the teeth come in contact with the tongue, lip or cheek, or where the chewing tobaccos or snuff rests in the mouth. Now and then a patch of leucoplakia can be produced by the irritation of a tooth, especially one with a metallic filling. In about one out of two hundred cases of leucoplakia the condition is pseudo-leucoplakia which is due to a rare skin disease of the oral cavity, very difficult to distinguish from leucoplakia, except by its onset in youthful age, and as a rule the factors tobacco and bad teeth are not present. We will not eradicate cancer from the human race until doctor and patient realize that the cause of leucoplakia is tobacco, and the only treatment is to stop tobacco in all forms, clean and smooth the teeth. I am confident that the majority of individuals can smoke in moderation with very little danger of leucoplakia if they practice daily oral hygiene and see a good dentist at frequent intervals.

Area of Irritation. Here the patient complains of a sore spot on the tip or the side of the tongue, or on the lip or the cheek, or on the gum, as a rule where the tooth comes in contact with the mucous membrane, or the sore spot may be partially or completely beneath a plate. The patient complains of vary. The pain may be sharp, stinging or dull; talking may increase the discomfort; highly seasoned food may make it worse. Sometimes it is a little red. In a number of these cases Vincent's angina is found in addition to an irritation tooth or an ill-fitting plate. These patients are almost immediately relieved by removal of the cause. But when the patient has the fear of cancer the symptoms are exaggerated and the area of irritation does not disappear even when tobacco, teeth, plate and the spirillum are removed. In this group the fear of cancer is perhaps more marked than in any other

group and for this reason these patients need special psychic treatment and will not be relieved of their local condition until the fear is overcome. The more we talk on the danger of cancer of the mouth, the more we tell people that a sore spot or a white patch may be the beginning of cancer, the more frequent are we to see areas of irritation the fear of cancer. Yet when these patients are properly examined and all the possible factors of irritation removed, and properly talked to, both areas of irritation—in the mouth and in the mind promptly disappear. I want to call special attention to the most marked area of irritation. This is due to the pressure of an ill-fitting plate and the red area of mucous membrane is distinctly outlined. The plate should be removed at once and never replaced until it has completely disappeared and then there must be a new plate.

Area of Irritation Due to Radium. There is no question that people are being very well educated, and they are coming to individuals and to clinics with the earliest stages of the lesions of the mucous membrane, and unfortunately radium is being widely distributed, and when radium is in the hands of one who cannot recognize leucoplakia, Vincent's angina, areas of irritation, hypertrophied papillae, the patients are apt to get radium instead of the removal of the cause. In the past two years I have seen a number of what may be called areas of radium irritation—the first stage of a radium burn. The original lesion had always been benign and the resultant one worse than the original. The red area of the radium burn resembles the red area of the pressure from the ill-fitting plate, except at the line of demarkation there is a narrow red line and beyond this a zone of mucous membrane covered with a gray exudate. It is not unlike the typical picture of a gumma, except that in the gumma the central area of irritation is yellow. These radium burns take months to heal. The most soothing treatment is frequent gargling with a solution of bicarbonate of soda and twice daily painting the spot with mercurochrome. The radium treatment may cause the leucoplakia, and we must remember that when a smoker has leucoplakia, it is more important to get rid of the tobacco than of the leucoplakia; if we get rid of the tobacco, we remove the cause of cancer. The indication for any treatment of the leucoplakia is cracking, scaling, wart or ulcer. Then it is

safer to burn the area out than to treat it with radium.

Hypertrophied Papillae of the Tongue. For practical purposes this is an area of irritation at the base of the tongue where the papillae are most marked. When the average patient sticks out his tongue, the average doctor does not see the papillary area so that most doctors are not familiar with the normal appearance of the papillae at the base of the tongue. Given a correctly informed adult—man or woman, who suddenly has a sensation of soreness at the base of the tongue and then goes to the doctor, who, for the first time sees a patch of red hypertrophied papillae and who does not take a smear for Vincent's angina, and who does not observe the molar teeth opposite this area covered with tartar, or who fails to look for infected tonsils, or pus dripping from the nasopharynx, or observe the other evidence of excessive tobacco, this patient in the early years of our educational efforts had a piece cut out for microscopic diagnosis, while now he gets radium treatment without any diagnosis, and then there is a radium burn. I have a number of such cases. Fortunately the number of cases in which there has been no treatment is the largest, and as cancer and syphilis frequently have their primary lesion at the base of the tongue is this area of papillae, one must make the differential diagnosis. In the first place get a better view, pull the tongue out with a bit of gauze, retract the cheek, look at the area with the cold Cameron light. You can always see ulceration which is never present in an area of irritation and hypertrophied papillae of the tongue. Palpate the area with your finger for the induration of cancer or tuberculosis. Exclude infected tonsils, nasosinus infection. Make cover slips for Vincent's angina. If the spirillum is present start your treatment. Clean and smooth the teeth, stop all tobacco while the investigation is going on, remove all possible causes. Allay the fear of cancer, take a blood Wassermann, give salvarsan when this is positive. Make a physical examination and look in the X-ray for signs of tuberculosis. Then, when all possible factors are removed, you can begin to think of splitting the cheek and excising the area for frozen section. But this is rarely necessary. The benign and the early stage of cancer are easily differentiated. Now and then a primare syphilitic lesion or an early tubercular infection may re-

quire a biopsy to differentiate from cancer, but a biopsy with frozen section, to be followed at once by the complete local removal, if the section shows cancer. Personally I have had one syphilitic lesion at the base of the tongue which I could not differentiate from cancer. It had passed the stage of hypertrophied papillae. The Wassermann was positive. It was my opinion that it was safer to do biopsy. The patient, however, took the risk and the salvarsan. In three weeks the lesion had disappeared. Had it been cancer he might have lost his life.

Hypertrophy of Labial Glands. The cysts and adenoma of the mucous glands, especially of the lower lip have been known even before we had educated the public to come at once if they observed a white patch or a sore spot, or a nodule in the mouth, and it is more than ten years since I published an article on keloid tumors of the lower lip. But only in recent years have I seen many examples of an exaggerated appearance of these glands throughout the mucous membrane of the mouth, especially on the cheek. These cases are drastic evidence that people are getting information and that the dental and medical professions are looking at the mouth more critically. In their first impression they think they are observing things they have never seen before. Perhaps they have never seen them before, but they were overlooked because the vision of both professions was taken up with a fully developed local lesion, usually cancer. In many mouths the little glands are visible beneath the red mucous membrane as dots and oblong sausage-shaped yellow and grayish white areas. They cannot be felt but are seen shining through the transparent epiderman layer of the mucous membrane. They remind me of the lacteals that one now and then sees shining through the wall of the small intestine near the mesentery when the abdomen is opened, usually for stab or gunshot wounds within two or three hours after a full meal. These visible sub-mucous glands of the oral cavity are not pathological but they must be borne in mind and differentiated from leucoplakia, Vincent's angina and areas of irritation. I know they have no relation to cancer. I have yet to find their diagnostic significance.

Stomatitis. A diffuse inflammation of the mucous membrane of the mouth always accompanies the diffuse form of Vincent's angina, but the typical local lesion of this infection is readily

seen in the inflamed mucous membrane. In the worst forms of diffuse leucoplakia associated with ragged, dirty, foul teeth, in addition to the diffuse white appearance of the mucous membrane, there may even be area of redness and even an exudate. In most of these cases the secondary stomatitis is associated with Vincent's angina infection. Now and then we see diffuse stomatitis when there is no element like tobacco in extensive pyorrhoea, usually associated with root abscesses. This type never gets well until the teeth are extracted. Infected tonsils and the dripping of pus from a nasosinus infection in the posterior nares may produce this type of stomatitis in which neither tobacco nor Vincent's angina is present as the causative agent. The stomatitis that has no relation to tobacco and is not associated with Vincent's angina is very slow in its spontaneous recovery after the causative factors are removed, and these patients, should they have a fear of cancer, may become chronic invalids or neurasthenics, because of the persistent symptoms—soreness, redness and whitish areas after the extraction of the infected teeth or the removal of the tonsils, or the drainage of the sinuses or the straightening of the septum.

This septic form of stomatitis present in the user of tobacco is often diagnosed leucoplakia, because white patches due to exudate are often present. These cases do not get well and are not even not much improved when tobacco is discontinued, and are often used as examples of leucoplakia having no relation to tobacco.

When Vincent's angina is treated without bacteriological evidence, this form of stomatitis is not relieved and when the cover slips show the spirilla the specific treatment for Vincent's angina does not give the usual immediate relief, because the factors of infection in root abscesses, tonsils or sinuses are still present. I am seeing more and more of this group. Such cases demonstrate the importance that, in addition to a survey of the oral cavity which includes X-ray films of the teeth and cover slips examination, there must be a thorough inspection of the tonsils, nasopharynx and sinuses. The dentist needs the nose and throat specialist, and the latter needs the former. Both should be able to make a complete survey.

Glossitis. A diffuse thickening and enlargement of the tongue has been observed chiefly

with leucoplakia, with and without cancer, in which blood Wassermann was positive and in tuberculosis of the tongue in which the Wassermann was negative.

In passing, it is interesting to note that the prognosis for a cancer of the tongue, no matter how small, in diffuse glossitis with Wassermann plus, is almost always fatal. Records show this from the very beginning, nor have we been able to find any improvement since the introduction of radium and X-rays, including buried radium needles and emanations with or without surgery.

Fissured Tongue. Unless due to the scar of a previous operation, it is usually associated with stomatitis, especially leucitic. I have not seen it in tuberculosis.

Bulging Cheek. Cancer of the cheek is more common in the fat than in the thin because the accumulation of fat in the cheek pushes the mucous membrane between the teeth and if there is leucoplakia with rough and ragged teeth, the opportunity for injury of the cheek is increased and with the opportunity for the development of cancer. Fat people with this complication should be unusually careful in keeping their teeth clean and smooth.

Fibroma. It is remarkable how often this lesion is diagnosed leucoplakia when the subepidermal fibrous nodule is covered with thin, white, anemic mucous membrane, or cancer when the mucous membrane over the white nodule has ulcerated due to the pressure of the nodule or injury from teeth or plate. These nodules vary in size from bird shot to that of a pea, the cause is the same as a fibroma elsewhere—injury. Biting the tongue, cheek or lip is the most common factor. Therefore, fibromas are most commonly found in areas which can be bitten by the teeth. When they are found elsewhere, the injury has been produced by a foreign body—fishbone, or a hypodermic needle in a tonsil operation, or a bruise by a dental instrument.

In about ten per cent of the cases of fibroma, cancer has developed. For this reason, if the lesion is in a spot subjected to constant irritation of the teeth or a plate, it should be removed at once with a good margin. If anywhere else, there is no danger to wait a few months for possible spontaneous disappearance, which often takes place in keloid or fibroma.

Wart. As the fibroma is a mass of connective tissue beneath the mucous membrane, a wart is

a mass of epithelial tissue on top of it. This area of epithelial hypertrophy is much more apt to develop into malignancy than the area of connective-tissue hyperplasia. The most common cause of a wart in the oral cavity is leucoplakia, but now and then the warty growth may develop at once from the irritation of a tooth or plate or from the burn of tobacco or pipe without any evidence of leucoplakia.

Warts should always be removed with a good margin, so that no matter what the microscope shows, sufficient has been removed. There is no way of telling whether the wart is malignant or not until the microscopic section has been examined. Up to 1915 records show very few warts and very few early cancers. Then came more early cancers and a larger number of warts. Now the per cent of warts is greater than the per cent of cancer, and the two together are much more numerous than fully developed cancer. This means we are on the road to cure cancer of the oral cavity.

Ulcer. Whenever you see an ulcer, think of cancer. If the ulcer is in leucoplakia do not delay a minute, but excise it with a good margin. If the ulcer, no matter how small, has an indurated edge, excise it, although it may be tubercular or syphilitic, or due to the pressure or injury from a tooth, nevertheless, if it is an ulcer, it is dangerous to delay to see the effects of removing the cause. Even if the Wassermann is plus, if the ulcer has an indurated edge, do not delay. The ulcer rarely seen in Vincent's angina, has no indurated edge and reacts almost immediately to treatment. It is usually associated with other minute ulcers so commonly observed in Vincent's angina to an extreme degree. In pyorrhoea there may be multiple superficial ulcers on the gum. But if there is a single ulcer, burn it out with the cautery and get enough tissue for microscopic study. Bear in mind that all these small ulcers of the mouth, no matter where they are situated, can be excised with a margin sufficient for cancer and, more important, sufficient for the cure of cancer, without mutilation, with far greater certainty of a cure than from radiation.

The unfortunate thing is that these little ulcers are neglected, because so many in the onset are not cancer and so many recover with and without radiation. But so many fully developed cancers today are the history of a neglected ulcer.

With few exceptions, the best treatment for an ulcer is its complete excision and at once. When the ulcer is so large that its complete removal would be mutilation, there must be biopsy, but there is not much chance of a cure for a cancer-ulcer in the mouth the complete excision of which means mutilation.

Tuberculous Ulcer. As a rule it has no induration and an excavated edge, but when the tuberculous ulcer is small, it may have an indurated edge and should be excised like any other ulcer, whether the edge is indurated or not. As a rule the tubercular ulcer is larger and when of this size, it has a different edge and does not palpate like cancer, and there is evidence of tuberculosis in the lungs. With this ulcer there may be stomatitis due to myositis around tubercles buried in the muscle. Sometimes, on account of induration, this is difficult to differentiate from cancer. Biopsy is always indicated, because the lesion is large, and this settles the question at once. Cancer seems to be rare in tuberculosis of the tongue and oral cavity. Now and then it has occurred in tubercular lupus of the skin. The prognosis for tuberculosis of the mouth is good. There is practically always tuberculosis of the lungs, and the tongue is infected because of injury.

Syphilitic Ulcer. The primary lesions are usually on the mucous membrane of the lower lip. They are characteristic, Wassermann plus, with rapid healing—within ten days—after salvarsan. Mucous patches are not so common, but the typical patch is not at all like cancer. Attention has already been called to a tubercular area at the base of the tongue, difficult to distinguish from cancer. Attention has also been called to the common association of cancer and syphilis of the tongue, stomatitis and gumma and its bad prognosis.

Records at Johns Hopkins show a definite and marked decrease in the number of cases with lesions within the mouth in which the blood Wassermann is positive, and the glossitis undoubtedly the result of untreated syphilis and gumma of the tongue have practically disappeared in the last ten years. Primary leucic lesions and mucous patches are becoming equally rare. Syphilis as a factor of cancer of the tongue so prominent in the time of Butlin of London is apparently under control in this country.

Pellagra. Fifteen years ago, when pellagra was common in the South, a few cases of stomatitis were observed, diffused lesions which are not difficult to distinguish from cancer. There was one case, a man from a southern state with glossitis with peculiar changes of the mucous membrane of the tongue. The lesion had come on while he had been confined to a penitentiary. The tongue had neither the appearance of cancer nor of tuberculosis. The Wassermann was negative. The X-ray showed no lesion of the lung. The spirilla of Vincent's angina was not present. The patient kept his teeth clean and did not use tobacco. While under observation vesicles and similar lesions broke out on the lower lip. Increased vitamins and essential foods were increased, followed by rapid healing of the entire lesion. I have no example of cancer of the mouth developing in one of these lesions of the oral cavity that may be associated with this disease.

Scurvy. This allows a discussion of the entire subject of bleeding gums, in which scurvy is only one of the factors. The discussion belongs under Vincent's angina. There are some cases of sore mouths, with or without the presence of Vincent's spirillum and with or without bleeding. Other causes and factors must be found and removed before the lesion of the mouth will recover.

Leukaemia. Now and then in leukaemia the gums are so swollen that the teeth are almost buried by the rising gum. It involves the upper and lower jaw and the tissues on both sides of the jaw. Microscopically, beneath the epidermis, there is a diffuse growth of lymphoid cells giving the picture of lymphosarcoma. The examination of the blood confirms the diagnosis. This condition of the gums in leukaemia, has appeared in very few cases and a short time before death.

Subcutaneous Benign Tumors. Practically everything above, so far excepting the hypertrophy of the labial glands and the fibroma, are lesions of the epidermal zone of the mucous membrane. Subcutaneous tumors are rare and as a rule not difficult to diagnose nor to completely remove unless they are too large. The diffuse haem and lymph of the mucous membrane of the cheek, floor of the mouth and the tongue may be so large at birth that one would wish to try radiation first. Experience favors complete ex-

cision of these angiomatous tumors if it can be done without mutilation. They are rare tumors.

When a subcutaneous tumor reaches the size of a pea, it is safer to remove it. There is no way to distinguish fibroma from the adenoma or the dermoid cyst. In a number of instances of malignant tumors—both cancer and sarcoma—the patients have become aware of a small subcutaneous tumor for years. The most common situation of these subcutaneous tumors is on the lower lip, and it is best to leave them alone unless they get larger than a pea, as they often disappear with and without spontaneous rupture. When size or irritation demands removal, give them a good margin and have them studied microscopically, because, as stated before, keloids may develop in the scar and suggest malignant recurrence.

Ranula and Sublingual Glands. One should be familiar with this region of the floor of the mouth. On each side of the anterior third of the tongue one can see and feel the mucous membrane sublingual salivary glands and on each side of the middle raphe one will observe the papillae through which this and the submaxillary salivary gland ducts empty.

Calculi and the sublingual and submaxillary glands are not at all difficult to recognize on palpation or in the x-ray, and are easily removed through the mouth. Ranula is a distinct submucous cystic tumor varying in size. There should be no difficulty in distinguishing it from sarcoma and cancer.

Mixed Tumors of the Parotid. Their common situation is in the neck near the angle of the jaw, but they may occur in the cheek, hard palate, tonsil, or in the sublingual region as well as in the submaxillary. They are distinctly palpable tumors. They can be easily and properly removed without mutilation. They can not always be differentiated from beginning sarcoma, or other benign tumors of various types.

Rare Lesions of the Oral Cavity. To-day the lesions above described are more frequent than cancer, in fact the non-malignant lesions of the oral cavity have increased from three to sixty-five per cent. Something new that is not malignant is coming under observation every month. Dr. Bedford Sheldire, before the section on Dermatology of the Southern Medical Association gives a very clear description of what he terms certain diseases of the oral mucous membrane

and vermilion borders of the lips. He speaks of them as a non-surgical condition of the oral cavity. He mentions the raspberry tongue of scarlet fever; Koplik spots of measles; the oral hemorrhages, ulcerations and infiltration of the various leukaemias, the glossitis of pernicious anemia, the ulcerations of a granulocystic angina; the stomatitis of pellagra; the hemorrhage of scurvy; the pin-head white oral tubercle of military tuberculosis; the petechial hemorrhage of bacterial endocarditis. He also describes very fully the stomatitis that may be produced by drugs, such as mercury, etc. Such stomatitis may extend to a diffuse periostitis with the ultimate loss of all the teeth and some sequestra. Since the use of intravenous lead for cancer there has been observed the blue line on the gum in most cases, but rarely stomatitis.

Cancer. Those of us whose surgical experience goes back 25 years or more know what late cancer of the mouth means. It means a hopeless condition in more than fifty per cent of the cases and a chance of curing the disease in less than twenty per cent. Far better results were obtained in the lips than on the tongue, and in the gum and hard palate far better than in the cheek and soft palate.

Radiation offers palliation when surgery offers nothing but mutilation. Only the ignorant and uninformed should die of cancer of the mouth. When the correct information in regard to the oral cavity is properly disseminated, dentists and physicians will be swamped with the type of lesions described, and cancer will then appear as an innocent local lesion in the type of a wart or an ulcer. Mouth lesions will then be one of two groups. In the larger, the cause or causes will be found and removed, and the lesion will disappear. In the smaller, the local lesion of the character of a wart or ulcer will immediately be properly removed with the knife or cautery, in such a manner that if the microscope shows beginning cancer, no further operation will be necessary.

DISCUSSION

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That the present campaign for cancer control is bearing fruit is borne out by the fact that a large majority of patients who consult us on account of ulceration or swelling of any nature

in the mouth or about the face ask the question, "Is it cancer?" While I fully recognize that in early diagnosis and treatment lies our only hope at present of conquering this disease, it is well to call attention to the fact that overenthusiasm in this propaganda may lead to a tendency to regard every abnormality with suspicion, and to insufficient effort on the part of physicians and dentists to discriminate between harmless abnormalities and potentially malignant growths. This over-enthusiasm has in some cases worked great damage to the minds of patients having some trifling lesion, causing them to adopt a hopeless attitude and become the subjects of various imaginary ailments. It has also led to entirely needless radiation or radical surgery for conditions requiring the simplest form of treatment or perhaps no treatment at all. If we can conduct this campaign in a sane, common-sense sort of way, without unduly alarming people, we shall go a long way toward reducing the mortality from this disease, but if people have to be scared stiff in the process of education much harm will be done also. Physicians and dentists, as Dr. Bloodgood says, should equip themselves so that they will be able to recognize and differentiate at least the commoner growths and abnormalities of the oral cavity. And here, perhaps it might be worth while to speak of one or two things which are *not* cancer of the mouth, but which, nevertheless are not infrequently mistaken for it, patients being advised to have radical anti-cancer treatment. One of these is the *torus palatinus*, which is a developmental evostosis of the palatal processes of the maxillae in the region of the median suture, presenting an oval, usually smooth but sometimes nodular hard swelling in the middle of the roof of the mouth. It is seen to a greater or lesser degree in about 20 per cent of elderly people. It undergoes no changes in size over a period of many years, causes no pain, and the individual is usually entirely unaware of its presence until attention is called to it by a physician. Perhaps a dozen cases are referred to me in a year for treatment, the patients having been informed of the possibility of a malignant growth. This condition demands surgical treatment only when the overlaying soft tissues become irritated from rubbing or where the swelling interferes with the proper fitting of an artificial denture. In such cases the mucoperiosteum can be dissected

back and the redundant bone trimmed away.

Another common site of imaginary carcinoma but a rather rare one for true carcinoma is the posterior part of the side of the tongue, just in front of the attachment of the anterior pillar of the fauces. Here are several parallel folds of mucous membrane, known as the *papillae foliatae*, which sometimes become enlarged and reddened, generally as a result of chronic nasopharyngeal infection, and may even become slightly indurated to palpation. Great care is necessary in cases of this character lest patients become obsessed with the idea of cancer.

A *decubital ulcer* from pressure of an artificial denture may have some of the characteristics of early carcinoma, presenting an ugly indurated sore, which, however, will disappear in a few days if the patient discontinues wearing the denture. Of course, it is well known that such forms of irritation if continued may lead to malignancy, but there is no reason for unnecessarily alarming the patient before giving simple measures of relief for a short time and noting whether spontaneous improvement occurs.

Tubercle, as Dr. Bloodgood has pointed out, is sometimes extremely difficult to differentiate clinically from carcinoma, but often with a little care and thought mistakes will be avoided. For instance, a woman in the early twenties presented a painful circumscribed lump about one centimeter in diameter at the edge of the tongue near the tip which had been noticed for about two years. Slight ulceration was just beginning. The patient had been almost driven out of her mind because a physician had suggested cancer. We realize that cancer is apparently becoming more common before thirty years of age. Yet cancer of the tongue in a woman of 23 is practically unheard of, and such a case should surely demand a little investigation for more probable things before suggesting the possibility of carcinoma to the patient. The biopsy confirmed the clinical diagnosis of tuberculosis.

I can add nothing to the wonderful description Dr. Bloodgood has given you of the precancerous lesions and early cancer of the mouth. I believe there is nothing in the literature that deserves to be more classical than his account of leucoplakia. Your Society is to be congratulated on this auspicious and enthusiastic opening of a

campaign which will undoubtedly have an effect in reducing the cancer mortality in the community.

WILLIAM C. SPEAKMAN, D. D. S.
WILMINGTON, DEL.

The medical profession in general, the dental profession in particular and especially the public at large, should be and, no doubt, are deeply indebted to Dr. Bloodgood for his labor and untiring efforts to teach us something of cancer and to lessen the dread of smallpox, yellow fever and tuberculosis and counter ills which in times gone by have been the scourge of the human race and which are no longer so dreaded.

With the knowledge and the means which are coming more and more to us, the dread of cancer will go the road and the dread of the afflictions mentioned above will be lessened.

Somewhere I have seen the statement that cancer is nothing more or less than tissue cells that have gone "bolshhevik." It struck me as being not a half bad statement.

Speaking for the dental profession, I haven't the slightest doubt that in the past many precancerous conditions have passed the eye of the dentists. Probably in the past he has been entirely too mechanical. He saw the teeth only, looked at the teeth only and visualized their mechanical repair. Evidences of leucoplakia, ulcers of the tongue and the lips, probably a bit of an enlargement of the jaw here and there and the slight evidence of an antrum disorder probably did not particularly interest him and he left that to the family physician or passed it by with the remark that "nature will take care of it and it will be better in a few days." However, I am glad to say that all this has changed. The dental surgeon of today, practically all of them, in examining a patient observes and makes note of the condition of the mucous membrane, the lips, the alveolar border, the palate and the tongue. He observes also the condition of the throat and last the teeth. He may not attempt to treat all these things, especially the throat, but he does call the patient's attention to tissue which is not normal. His eye has been trained to a more complete diagnosis of mouth conditions as a whole.

You see, in the past, I had better say, years ago, the teaching staff of a medical college realized that the dental teaching staff of probably

the same college or university was giving thorough instructions in the mouth and on the other hand, the dental teaching staff, as I say, years ago, was given to teach more of the mechanical repair of the teeth and the supply of the missing ones and the pathological conditions of the mouth were left supposedly to the teaching staff of the department of medicine; but, as I say, this has changed, and today with an intimate cooperation between the physician and the dentist, the cancer survey for which we are preparing will be far more successful with the two professions working hand in hand.

There are from time to time pre-cancerous conditions or conditions which may lead to pre-cancerous conditions in the mouth and as Dr. Bloodgood points out, they have a small beginning, sometimes so small a beginning that they seem insignificant. One which he takes up—epulis—is more or less common. It is very prone to make its appearance between teeth, one or both, affected by caries. It is undoubtedly caused by irritation and the increased growth comes from, not the mucous membrane, but from the underlying tissue, the mucous membrane lending itself as a covering in which the cell growth is contained. In the vast majority of cases it disappears when the irritation has been removed, and the irritation is removed by restoring the natural contour of the teeth so that food does not pack down upon the irritated tissue.

It is quite true, as Dr. Bloodgood asserts, that we must take into consideration antrum shadows from reflected light and the x-ray. Antrum shadows must not be neglected. They may come from sarcoma or sininitis. If it is the latter, we find on opening into the antrum, pus, which should be cultured and smear obtained. If it is a dry operation then you must look for tissue for microscopic study.

Dr. Bloodgood calls our attention to ill-fitting plates. There are still ill-fitting plates, it is true, but not so many of them, for mechanical reconstruction is growing better and better so that the source of irritation can almost be dismissed. I know of one case of an enlarged tuberosity which was undoubtedly caused by a plate which the patient was wearing and I have lately observed a sarcoma which unquestionably was produced by the stem of a pipe plus a few very ragged teeth on the same side of the mouth.

Biting the cheek is another thing which a den-

tist observes and which is easily corrected, so we may pass that along.

Probably the greater number of teeth that are extracted today are extracted without first making an x-ray. Probably making an x-ray is the ideal thing to do, but very busy men, particularly those making a specialty of extractions, do not have the time to make x-rays of all teeth extracted, and in the majority of instances it is not necessary, although I say it is the ideal way. Men who make a specialty of extraction become very skillful and they very soon see if a tooth, loose or not, is an unusual one. I am glad to say that a great many such men, as a means of precaution, do send the teeth to a laboratory for investigation.

Small warts and hypertrophied papillae are not exactly frequent but they are found in mouths and in a great many instances remain benign unless they are subject to a great deal of irritation. Irritation of the lips from rough and dirty teeth is always a menace and should be watched as should all hardening of a small spot, a warty thickening, superficial sores and ulcers that do not heal.

I do not think it is wise to even suggest to a patient that one suspects cancer, or a pre-cancerous condition, but I would say to the patient, "Here is a little sore or thickening or growth, it probably isn't anything at all but let's watch it, let's do not let it become something grave,"—and if needs be obtain enough tissue for a microscopic examination.

We must bend our efforts towards cancer eradication without producing cancerphobia.

CARCINOMA OF THE CERVIX*

RICHARD C. BEEBE, M. D.

LEWES, DEL.

* Read before the Medical Society of Delaware, Rehoboth, September 11, 1928.

This paper on carcinoma of the cervix is not a collection of scientific data, but is intended to treat the subject as presented to the general practitioner, who, in my opinion, can do more at present to lower the high mortality rate of cancer, by early diagnosis, and education of patients to the great risk of neglect, than any improvement in application of treatment that exists at present. Many patients say they were advised by friends that the symptoms they complained of are only normal for the time of life.

If the public had to watch the suffering of the patient and the family during the course of fatal carcinoma, there would not be the objections to pelvic examinations, upon which so much depends if the patient is to be cured.

All authorities agree that cancer can be prevented in the majority of cases by the proper recognition and care of the so-called pre-cancerous stage of tumors and ulcerations, also that the large percentage of cures occur in the early treatment of cancer. According to late statistics, some five year cures of carcinoma of the cervix have occurred after eighteen and twenty-four months of symptoms; but very few are operable after eight months of symptoms. The primary mortality rates taken from all the large clinics vary from 3.5 to 26.6%. The percentage of five year cures averages from 16 to 20% by operative or radium treatment.

I will classify patients as (1) pre-cancerous, (2) operable, and (3) inoperable. By pre-cancerous, I mean any chronic inflammatory condition of the cervix. Every patient with symptoms referable to the genital tract should be given the benefit of examination with speculum; and any chronic inflammatory condition should be looked upon with suspicion. If the condition does not clear up promptly by use of cautery, etc., we use small doses of radium, the results of which even in ordinary endocervicitis and small uterus fibroids are remarkable.

The operable carcinoma is one involving the cervix only and not over eight months in duration. The treatment of this is favorable by either operation or radium; but we feel that the preference should be given to radium. The primary mortality rate is lower, and the difference in convalescence is very marked. These patients should, without exception, have frequent follow-up examinations, preferably monthly.

The carcinoma involving the rectum, bladder, paracervical tissues, and regional lymph glands, over eight months standing, is usually past cure by operation; and the primary operative mortality of these cases is very high. Radium seems to be the rational treatment. These patients are generally in poor physical condition; their hemoglobin, from 30 to 50%; and their red cells, 2,000,000 to 3,000,000 with associated emaciation and cachexia.

Radium usually checks the bleeding promptly, always stops the menstrual period after the first

month, which to my mind helps very much in the local as well as the general improvement of these patients. It returns diseased structures to normal appearance and function. The application of radium in any case is not to be compared by its immediate or after effects with the most skillful operation which always means panhysterectomy and sometimes more. Almost all clinics use moderate doses of radium with frequent examinations and repeated applications if necessary.

CASE HISTORY No. 1

Mrs. C. H., age 45 years, white. Chief complaint: continuous uterine bleeding. Family history: negative. Past history: no bearing. Admitted to the hospital July 8, 1927 with a history of continuous vaginal bleeding for past six months with intermittent, profuse hemorrhage. Had first noticed some spotting between menstrual periods about a year previous. On admission her hemoglobin was only 55 with a red cell count of 3,200,000. On examination, she was found to have a large fungating growth, friable and bleeding at touch, involving the anterior lip and left side of the Cervix as well as the lower segment of the fundus. Several days after admission, 50 mg of radium was inserted into the cervical canal; the cervix and vagina, packed; and left for twenty-four hours when it was removed. She had no hemorrhage following the removal of the packing and no especial complaints save that of weakness. She remained in the hospital nine days when she was discharged, July 23, 1927, looking much better and having, in a large measure, regained her strength. Her condition at the time was noted as improved. On September 5th, she returned for examination and was advised that the radium treatment would probably have to be repeated. A month later, examination revealed the entire anterior vaginal wall to have become involved. After that she had frequent vaginal bleeding with at times profuse hemorrhage. Regular examinations showed a constant spreading of the carcinomatous growth with a steady degeneration of her general condition. She became steadily worse and expired August 19, 1928, slightly over two years after the first symptoms appeared.

CASE HISTORY No. 2

Mrs. B. M., age 30 years; white. Chief complaint: frequent vaginal bleeding. Family history: negative. Admitted to the hospital Febru-

ary 8, 1927 with a history of frequent vaginal bleeding since summer of 1926. Also gave history of having had dysmenorrhea and some irregularity of menstruation since puberty. For past four or five years, had had constant white or creamy vaginal discharge which about a year and a half before admission, became blood tinged. Had not had any frank hemorrhages, but bleeding became so irregular and so annoying that she came in the hospital for examination. She had no pain or discomfort of any kind. On examination, a bleeding friable mass was seen on the anterior lip of the cervix involving part of the vaginal wall. Her hemaglobin at that time was 65. The carcinoma was cauterized and 50 mg of radium inserted and left for twenty-four hours. Patient was discharged but returned at frequent intervals for observation and treatment. Six months later, had some slight bleeding from the vagina and returned to the hospital, where 50 mg of radium was again inserted and left for twenty-four hours. Examination at this time showed the cervix to be enlarged and hard to the touch with a scar on the right side extending to the wall of the vagina where the previous growth had been curetted. There was some bleeding from the cervical canal which was rigid and resisted dilatation. Patient had no trouble and was discharged at the end of the week on September 17, 1927. The following month, she returned for examination, and her condition was noted as improved. On January 20, 1928, her condition was noted as improved in every way. There was very little discharge and no bleeding from the cervix which was soft and pliable. Report from patient one month ago said discharge had entirely ceased.

To summarize briefly, will again state that the general practitioner has it in his power to lower the mortality and morbidity rate of carcinoma of the cervix; that radium often cures chronic inflammatory conditions of the cervix resistant to other forms of treatment; has lowered mortality and morbidity rate in operable cancers, and has cured a large percentage of inoperable cases.

THE DUTIES OF THE PHARMACIST IN CONNECTION WITH HIS SERVICES TO THE PUBLIC

Pharmacy has for its primary object the service which it can render to the public in safe-

guarding the handling, sale, compounding and dispensing of medicinal substances.

The practice of pharmacy demands knowledge, skill and integrity on the part of those engaged in it. Pharmacists are required to pass certain educational tests in order to qualify under the laws of our states. These states thus restrict the practice of pharmacy to those persons who by reason of special training and qualifications are able to qualify under regulatory requirements and grant to them privileges necessarily denied to others.

In return the states expect the pharmacist to recognize his responsibility to the community and to fulfill his professional obligations honorably and with due regard for the physical and moral well-being of society.

The pharmacist should uphold the approved legal standards of the United States Pharmacopoeia and the National Formulary for articles which are official in either of these works and should, as far as possible, encourage the use of these official drugs and preparations and discourage the use of objectionable nostrums. He should sell and dispense only drugs of the best quality for medicinal use and for filling prescriptions.

He should neither buy, sell nor use substandard drugs for uses which are in any way connected with medicinal purposes.

The pharmacist should be properly remunerated by the public for his knowledge and skill when used in its behalf in compounding prescriptions and his fee for such professional work should take into account the time consumed and the great responsibility involved as well as the cost of the ingredients.

The pharmacist should not sell or dispense powerful drugs and poisons to persons not properly qualified to administer or use them and should use every proper precaution to safeguard the public from poisons and from all habit-forming medicines.

The pharmacist, being legally entrusted with the dispensing and sale of narcotic drugs should merit this responsibility by upholding and conforming to the laws and regulations governing the distribution of these substances.

The pharmacist should seek to enlist and merit the confidence of his patrons and when this confidence is won it should be jealously guarded and never abused by extortion or misrepresenta-

tion or in any other manner.

The pharmacist should consider the knowledge which he gains of the ailments of his patrons and their confidence regarding these matters, as entrusted to his honor, and he should never divulge such facts unless compelled to do so by law.

The pharmacist should hold the health and safety of his patrons to be of first consideration; he should make no attempt to prescribe or treat diseases or strive to sell drugs or remedies of any kind simply for the sake of profit.

He should keep his pharmacy clean, neat and sanitary in all its departments and should be well supplied with accurate measuring and weighing devices and other suitable apparatus for the proper performance of his professional duties.

It is considered inimical to public welfare for the pharmacist to have any clandestine arrangement with any physician in which fees are divided or in which secret prescriptions are concerned.

The pharmacist should primarily be a good citizen and should uphold and defend the laws of the state and nation. He should inform himself concerning the laws particularly those relating to food and drug adulteration and those pertaining to health and sanitation and should always be ready to cooperate with the proper authorities having charge of the enforcement of the law.

The pharmacist should be willing to join any constructive effort to promote the public welfare and he should regulate his public and private conduct and deeds so as to entitle him to the respect and confidence of the community in which he practices.

AMERICAN PHARMACEUTICAL MANUFACTURERS' ASSOCIATION

The Chamberlin-Vanderbilt Hotel at Old Point Comfort, Va., has been selected for the annual meeting of the American Pharmaceutical Manufacturers' Association, to be held June 3-6.

The meeting this year will take on an international aspect, as invitations have been extended to more than twenty-five leading Canadian manufacturers to attend and participate. Representatives of the British Chemical Manufacturers have also been invited.

Discussion of distribution problems will be one of the principal features of the meeting. Closely allied to distribution is the work of the

publicity committee. Their report will include the results of a survey of the medical profession which has recently been started to improve the service of the association to the profession. There will be exhibits of medical advertising by some of the members and many practical advertising and publicity problems will be discussed. Speakers of national reputation have been secured for the annual banquet, which will be one of the features of the meeting.

Under the able leadership of Mr. R. Lincoln McNeil, who has been president during the past two years, the A. P. M. A. has been very active in all departments of its work. The annual meeting at Old Point Comfort bids fair to be the most successful in the history of the Association.

REPRESENTATIVE NEWTON TO BE SECRETARY TO PRESIDENT HOOVER

Representative Walter H. Newton, of Minnesota, the author of the Newton bill recently abandoned in Congress, and of the present Newton bill to extend the Sheppard-Towner act for a period of five years, has been selected by President Hoover as third secretary. This means that Mr. Newton will be liaison officer between the chief executive and the heads of the various independent agencies of the government, such as the veteran's bureau and the shipping board.

Mr. Newton will resign from Congress and will enter upon his new duties in the near future. His salary as third secretary will be the same as that which he receives as a member of Congress—\$10,000 per year. Mr. Newton is now in a position to spread his so-called welfare ideas in a more effective manner than he was as a representative from the State of Minnesota. We doubt if his appointment is a good omen to the great American public that believes we have over centralized, over paternalized and over bureaucratized the supervision and control of the citizenry and the American home.

—*Illinois Medical Journal.*

The nurse in a Delaware industrial plant was recently handed a confidential note by a colored employe who seemed to be somewhat embarrassed. Upon opening the note she read:—

"1132 is Sick he Has Ben sick for 3 days
With The Dierear."

EDITORIAL

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Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

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MAY, 1929

No. 5

INTERNES AND MORTICIANS

No hospital can function without internes. No prospective intern will go to a hospital not approved by at least one of the various standardizing organizations. Approval can be had only by complying with certain minimum, but definite, requirements. One of those requirements, imposed by the Council of Medical Education of the American Medical Association, calls for autopsies in increasing numbers. Formerly, ten per cent of all deaths within a hospital had to be autopsied, but the percentage has now been increased to fifteen. This seems to be a very meagre figure as compared with some of our outstanding hospitals that secure better than ninety per cent, but in most hospitals,

especially those not connected with some medical school, the securing of even fifteen per cent is frequently a problem.

The professional staffs, both visiting and resident, are awake to the value of post-mortem examinations, and are endeavoring to secure them, in most instances. But it takes a long time to educate the public to their value, and the public is only too anxious to seize any and all excuses to refuse such examination. This seemingly inherent weakness can be overcome only if all those interested in the examination and further care of the body act in unison. This brings as to the morticians (high-brow for undertakers), some of whom need a little additional education.

The Wilmington hospitals have endeavored to secure their full quota of autopsies, but have been balked, in part at least, by one of the deputy coroners, who has been telling the colored people of this community "not to let them cut up that body." This sort of thing coming from a deputy coroner, himself a colored man and a mortician, is all that is needed to nullify any and every effort to secure a post-mortem examination. Such an attitude on the part of an officer of the law, presumed to be interested in medical science, is most reprehensible. The coroner himself is desirous of securing all necessary autopsies, and has assisted the hospitals very materially, but if he, by law, cannot now compel his colored deputy to assist in carrying out his program he should be given such control by law. We have an idea that this deputy could be "influenced" by certain of our political factotums to refrain from his present interference. If a little persuasion is not able to make this dark brother see the light, charges of malfeasance in office should be preferred. When the plum tree is about to be chopped down it is amazing to observe the alacrity with which some folks can get out from under. Try this on the Hamitic mortician.

SPEAKERS AND THINKERS

The gift of oratory is a rare one. No man on earth arouses our envy quite so much as the gifted speaker who, merely with words, can move an audience from tears to laughter and back

again, all the while delivering a message worth while. The medical profession has never had its fair share of good public speakers, but it has had more than its share of really good *thinkers*. But, alas! some of them who think well to themselves, cannot think well out loud, in other words most medical men are poor speakers, especially if talking extemporaneously.

A partial report of the recent convention of the Catholic Hospital Association follows:

Chicago, May 6.—Catholic hospitals of the United States are in thorough sympathy with the present agitation for reduced medical costs, but are agreed that such reduction must not be accomplished at a sacrifice of hospital standards.

They feel that there is merit in the demand that doctors' costs be lowered, but believe there should be greater concern for the matter of increased service and more expert treatment of the sick. In a word, they do not believe the dollar-mark should be allowed to rule the relations between physician and patient or be accepted as the criterion of a good hospital or a bad one.

Their attitude on the expense question was thus revealed today by the Rev. Dr. A. M. Schwitalla, dean of the St. Louis University School of Medicine and president of the Catholic Hospital Association of the United States. Dr. Schwitalla was addressing the opening session of the association's fourteenth annual convention here and was heard by about 300 physicians, 400 nurses and 800 nuns. The association represents 763 hospitals conducted by the Catholic Church throughout this country.

"The cry has gone abroad that sickness must be made cheaper," Dr. Schwitalla reminded the association. "It is said the monetary value for the services of physicians must be standardized and, if at all possible, reduced. I wish to say that I am sympathetic with this movement. It contains elements of unquestioned good, but is it not possible to have the sick human being obscured by the magnitude of the dollar sign?"

Dr. Schwitalla said he approved of a thorough study of the financial problems of the hospital, but asserted that the criterion of a good hospital, in the last analysis, must remain the professional, medical and nursing care that is given to the sufferers.

"The responsibility for the patient is the responsibility of the hospital," he added, "but it may be just as emphatically stated that the physician's responsibility cannot be waived in view of the hospital's responsibility for the patient. The last work in the care of the sick patient must, without doubt, rest with the physician."

Dr. Schwitalla declared there was a danger in fostering a non-medical attitude toward the sick. The physician's interest will tend to lag if he is relieved in any way of responsibility, he asserted.

If the doctor has been quoted correctly, several questions immediately come to mind: as—was this a prepared speech, read from a manuscript, or was it merely some extemporaneous remarks by the presiding officer? Does he really believe that "the monetary value for the services of physicians must be standardized?" Does he think physicians themselves *can* be standardized, let alone *must* be? Is it possible to have standardized monetary values without having standardized brains? Does *any one* believe that brains can be standardized? On maturer thought, is he really sympathetic to the movement he mentions? And finally, does the Catholic Hospital Association agree with its president in this matter?

EDITORIAL NOTES

At the close of the present academic year nine medical schools will have attained the century mark for age. These centurions, and their ages are as follows:

Pennsylvania	163
Harvard	146
Maryland	126
Columbia	121
Yale	104
Jefferson	104
Virginia	100
South Carolina	100
Georgia	100

The average age is 118 years; the average year of founding would therefore be 1811. Since this year marks the 153rd since the Declaration of Independence, it is apparent that the only one dating continuously from colonial days is the venerable Pennsylvania. It is also apparent that the southern states began simultaneously, as distinct from the northern ones, whose efforts were scattered over 57 years. This southern move-

ment is all the more remarkable when we consider the relatively small population there at that time.

May all nine of these premier educators enjoy long life and great prosperity. Judged by some of their European counterparts, they are still in their swaddling clothes. We hope they may all grow to man's full estate.

Some of these days we are going to write a book—on medical ethics. And if the royalties on the first few thousand copies amount to enough, we are going to make a present of a copy to several candidates whose names have been proposed. Actually, good books on medical ethics are few and far apart, and we know of no school that requires a serious study of the subject. And it is serious.

No, doctor, you are not safe yet! Beware the ides of March! The income tax reports for this district for the year 1928 are not yet fully checked and audited, and you may yet answer your telephone to make an appointment that is not strictly professional. They are so deucedly polite about it they actually come to you, and at the time that suits *you*. The only consolation is you will not be in suspense very much longer; for the past few years the revenueurs in the district of Delaware have led the country in their promptness in checking the returns.

The cupboard is almost bare. We have "cleaned up" the transactions of the last meeting of the State Society, and have very few original papers left to publish. Incidentally, we are not getting the papers read before the county societies. We urge you to cooperate with us, since it is our earnest desire to make this Journal something more than a mere local pamphlet.

The questionnaire cards concerning cancer cases have been mailed to each physician in the State, but so far there have been made only a very few returns, to be exact, 25 out of 300. It is presumed that each physician has seen an average number of cancer cases, the most of whom have been in some Delaware hospitals and are therefore not to be reported by the physician, but there must be certain cases that went to an out-of-state hospital or to no hospital at all. These are the ones which should be reported on the physician's card.

HOSPITAL NEWS

WILMINGTON GENERAL HOSPITAL

The new Wilmington General Hospital building, Broom and Chestnut Streets, and Robin Hall, the nurses' home, a memorial to the late Dr. Albert Robin, an enthusiastic supporter of the hospital during his lifetime, were opened to the public on April 19, following dedicatory exercises.

The ceremonies attending the opening of the hospital were brief and simple. Rabbi Abraham M. Milligan made the opening prayer. Bishop Philip Cook gave a short dedicatory address and the closing prayer was by Bishop Edmund J. FitzMaurice. David Snellenburg, president of the Hospital Association, presided. Following the ceremonies, the hospital building opened for the inspection of the public. At the same time, Robin Hall was also opened to the public.

Plans for the Wilmington General Hospital were drawn by York and Sawyer, New York City, architects, who specialize in the construction of hospitals. The consultant was Dr. S. S. Goldwater, of New York City, superintendent of Mt. Sinai Hospital. The plans were submitted January 11, 1927, and were approved April, 1927. Bids were opened July 28, 1927, and the contract for the hospital building awarded to William M. Francis Company, August 3, 1927, that firm's bid being \$471,755. The contract for the boilers and stokers was awarded the Edge Moor Iron Works on a bid of \$18,599.

Construction work began with the excavation that started on August 12. This continued throughout the winter of 1928, which, because of its severity and the encountering of much rock, held back the work between two and three months.

When the excavation work had progressed sufficiently, and mason work had reached the level of the ground, the cornerstone laying took place April 21, 1928, just a year ago.

The construction work proceeded on schedule until the death of Dr. Albert Robin. It was decided to erect a memorial to Dr. Robin, to take care of all the nurses, and this necessitated a complete change in the hospital building which temporarily delayed construction work.

The William M. Francis Company, the general contractors, are proud of the record that they have made in completing the building and turning it over to the hospital authorities two months ahead of the time set in the contract for its completion.

The building and equipment is modern in every particular, and in design and construction is the last word in hospital planning. Robert P. Schoenijahn, consulting engineer of this city, designed the mechanical systems in the building including heating, electrical work, and the refrigerating system.

The entire building is of fireproof walls of dark red face brick backed construction throughout, the exterior with hollow tile and three inch air space between the exterior wall and the tile furring on which the plaster is applied, provides proper insulation and a space for running pipes and conduits. All floors are of reinforced concrete and all structural steel is fireproofed with concrete. Practically all of the rooms throughout the building are provided with suspended ceilings constructed of metal furring and lath on which plaster is applied. These provide dead air space between the ceilings and the floor above, insulating against sound and the temperature changes, and provide adequate space for all horizontal piping. All doors and windows in stair towers and elevator shafts are of steel. The roof is also of fireproof construction, the slate surface being supported on fireproof gypsum concrete which is in turn carried on steel purlins and trusses.

The building presents a handsome appearance, located on a beautiful tract of ground at Broom and Chestnut Streets. The dark red brick laid in white mortar with the white Vermont marble trimmings and marble entrance places it among outstanding buildings in the city.

In the basement is located the boiler room and the machine room where the pumps and other mechanical machinery are installed. Adjacent to the boiler room are provided large underground coal bunkers with a capacity for a year's supply of coal. The coal is placed in hoppers and from there is fed by automatic stokers onto the grates under the boilers. Provision has been made in the boiler room for the installation of an additional boiler to meet the demand for future growth of the hospital. This heating plant provides heat through underground mains to the Nurses' Home and to the contagious unit. Also, located in the basement, with large windows on three sides, is the laundry which is equipped with the latest and most modern machinery. Here also is provided space for additional machines to accommodate the future growth of the hospital. Adjoining the laundry is the clean linen and sewing room where the linen is stored and where necessary repairs are made. Also located in the basement are the refrigerating room and incinerating room, various storage rooms, shops, and other departments in connection with the maintenance of the hospital.

Visitors coming to the hospital enter a small but beautifully designed lobby of octagonal shape with marble walls and floor. Leading in three directions from this lobby are the main corridors of the hospital, which in general are shaped like the letter "T."

From this lobby the elevator may be entered. At the right are the cashier's desk and superintendent's office and to the left of the lobby is located a reception room. The balance of the first or main floor is devoted entirely to service. Rooms are provided for the directors and for the interns. A well equipped pharmacy and dark room are included. The dispensary of out patients' department is complete in plan and equipped and contains a waiting room, a social service room, and emergency operating room, a surgical room, and departments for the eye, ear, nose and throat and dental treatment. Adjoining the emergency operating room on the opposite side of the emergency entrance is located the morgue, with two mechanically cooled mortuary refrigerators. Located at the rear of the north wing are diningrooms for the employees.

A complete X-ray department is located on the first floor. This includes dark rooms for the development of the plates, special rooms with instruments for the X-ray study of bone fractures and the cardiograph department where the actions of the heart are studied. The south wing on the first floor, which was originally intended to serve as training quarters for the nurses, was redesigned when these facilities were moved to the Nurses' Home so that this portion of the building could be used for Negro wards. Here one finds well planned and well lighted men's and women's wards, a Negro maternity ward adjoining which is a storage utility room for the use of the nurses, and a service pantry from which the food is served to this department. A separate entrance on the south wing is provided to this unit of the hospital.

On the second floor is located the culinary department, consisting of the floor preparation room, in which is located the dairy, meat and vegetable refrigerators, and the main kitchen and dish washing department. This department is well lighted and planned for continuous passage of the food from the time it comes to the service entrance until it has passed over the cafeteria counter, or delivered in electrically heated carts to the various private rooms and wards throughout the building. On the opposite side of the rear wing from the kitchen is located the nurses' diningroom, which is served in cafe-

teria style from the kitchen, and also a staff diningroom. The balance of the second floor is devoted entirely to wards and rooms for patients. For adults there are three four bed wards, two three bed wards, six semi-private rooms, each containing two beds, one day room and one quiet room. There is the usual completely planned department for children, comprising one seven bed ward and one three bed ward. Adjoining these are bath rooms, toilet and utility rooms. In the children's bath rooms are provided special porcelain slabs with tempered water for babies' baths. All of the rooms are accessible to a large sun porch located on the south wing.

The north and south wings on the third floor are devoted entirely to patients' rooms, the space being divided into 14 private rooms, and six semi-private rooms each containing two beds, and one three bed ward. Some of the private rooms are grouped together and made communicating with a bath between to provide two room and bath suite when necessary. In addition to the provision for adult patients there is on this floor a nursery containing 11 beds or cribs, adjacent to which is the usual nursery bath with all the equipment for the proper care of the baby. Centrally located in the group of patients' rooms is the service pantry and utility room from which the nurses work in caring for the patients and serving the food. As on the second floor a large sun porch is provided on the south wing accessible to all patients on this floor.

The entire rear wing on the third floor is devoted to laboratories and the operating suite. There are two main operating rooms finished with green tile walls and black tile floor, each room having a large north window providing the much desired north light for operating purposes. Between the two operating rooms is located the doctors' scrub-up room, in which is provided built-in metal instrument cabinets. Adjoining the operating rooms and in the same corridor, which can be closed off from the rest of the hospital, is located the sterilizing room with complete equipment for the sterilization of bandages, hot and cold water and instruments. Across the hall is the anaesthetizing room. The delivery room is also fitted up for the maternity department, which in effect is an exact duplicate of a small operating room, with the regular operating room equipment and lighting. In this department is also included the metabolism section, the chemical laboratories and dressing and locker rooms for both the staff and nurses.

In planning the building of the hospital special attention has been given to such features as will prevent the accumulation of dust and germs. The corners at all ceilings and floors have been rounded and all floors are of terrazzo, tile or marble with the exception of the corridors which have linoleum laths. All doors are of a sanitary flush type construction without panels and all wood trim around the doors has been eliminated, the plaster walls finished smooth and flush with the metal door frames.

It is impossible to visualize the tremendous amount of work the building committee, of which Charles Topkis is chairman, has put into this building. The construction work was greatly aided through the co-operation of the Francis Company in furnishing labor and tools for the outside work about the hospital. This embraced roadways, driveways, stone work, steps, grading and planting of trees, the landscape work of which reflects the artistic talent of Harry Fulenweider, clerk of the work.

Much credit the Building Committee states, is due Ellwood Souder and Sons Company, for the complete furnishings of the institution. The Souder concern had charge of the decoration and furnishing of the hospital. The rooms, instead of being finished like the majority of hospitals, with white enamel paints and bare walls, are given a more natural and home-like appearance through the use of colored paint and draperies that add much more life and cheer than the old style rooms.

The contract for Robin Hall was awarded May 11, 1928, John E. Healy and Son, being the successful contractors with a bid of \$118,651. Contract for heating was awarded Gawthrop and Brother for \$28,700 and the electrical work to E. F. Higgins and Company for \$5,653, making the total cost \$153,004.

Work on the nurses' home was started June 1, last year. The architects were Brown and Whiteside, of this city, and their planning was so thorough that less than \$500 has been added to the first cost for extras.

An outstanding feature is that every bedroom is connected with a bath. Every bedroom also has a built-in wardrobe for clothing instead of a chiffonier or movable wardrobe.

The nurses' home was also furnished by Souder and Company. After building the home, the committee found that with an additional furnishing expense, it could care for 62 instead of 50 nurses, as originally planned.

DELAWARE HOSPITAL

The Delaware Hospital will be enlarged and better facilities will be provided for the care of the sick and injured, according to plans announced today.

The plans call for additional structure and improvements to cost about \$750,000 which will result in the development of the hospital into the largest institution of its kind in a city the size of Wilmington in the United States and the largest hospital on the Del-Mar-Va Peninsula.

A committee has been appointed by the Board of Trustees, of which Colonel George A. Elliot is president, to be headed by H. P. Scott, Jr., to ascertain the building requirements necessary for the hospital and to make the necessary preliminary arrangements. Clarence R. Hope, Wilmington architect, has been commissioned to draw up the plans in conjunction with a noted hospital consultant.

Although the exact details of the capacity of the additional equipment and buildings will depend upon the results of the survey of the committee, it is expected that the hospital facilities will be added to so that it will be a 300 bed institution instead of a 200 bed hospital as it is at present.

The tentative plans call for the tearing down of all the old buildings of the present hospital and to replace them with a larger and more modern set of buildings of modern design. The new buildings of the present plant, the Washington Street building and the Nurses' Home, will probably be retained for use in the new institution. Two new large structures will be constructed and it is likely that another floor and a wing will be added to the Nurses' Home.

Plans call for the use of the present Washington Street building as a general service building and two wings connecting to it will be built parallel to Fourteenth Street. The south wing will contain the accident receiving ward on the first floor, the emergency receiving ward, the dispensary and the rooms for the various clinics.

The second and third floors will be used for wards and the fourth floor will be devoted to use as the maternity ward and delivery rooms. The children's ward will be on the fifth floor. Special efforts will be made to have the children's ward complete and modern in every detail. Particular attention will be devoted to the provisions for fresh air and sunlight for the infants and children. A playground and court will be included on this floor.

Private rooms will be located on the first, second, third and fourth floors of the north wing which will be devoted entirely to private rooms. On the fifth floor of the north wing will be four operating rooms, the X-ray and electro-therapy laboratories, the instrument and sterilizing rooms and several clinical laboratories.

The administrative offices and research laboratory will be located on the first floor of the present Washington Street building, the diet kitchen will be on the second floor, the general dining room on the third and the quarters of the resident physicians on the fourth floor. The Nurses' Home will adjoin the hospital buildings, and on the side and rear of the home will be the heating and power plant, laundry and storerooms.

The new hospital has been found necessary by the tremendous amount of work performed there. In 1928 there were 43,070 hospital days at the institution. They were based on each day spent in the hospital by each patient. A total of 19,673 patients were treated in the dispensary and 3,737 treated in the rest of the hospital. Operations performed totaled 1,745 and 2,998 X-ray examinations were made.

A total of 836 ambulance cases were treated and the maternity ward registers a total of 372 births. There were 23,410 cases treated in the dispensary and the hospital and there were 280 deaths. Thirty per cent of the cases handled at the hospital were charity patients.

There were 53 doctors directly connected with the hospital, one of the largest staffs for a hospital of the size in the East. It is planned to construct the new buildings and equip them before the old buildings are disturbed, thus causing no interruption to service. As soon as the present plans are approved and accepted, work on the new units will be started.

The officials are considering the construction of a new unit to be built with the other additions when the hospital starts its construction program, to be used exclusively for colored patients with Negro nurses in charge. The officials point out that such a unit would fulfill a long felt need in the city.

The Delaware Hospital has long wished to include a building devoted entirely to the care and treatment of the colored in its hospital organization, but the necessary funds have been lacking. Under the new building program of the board, the plant may become a reality.

The construction of such a unit, Miss Caroline E. Sparrow, superintendent of the hospital, said yesterday, would be one of the most important advances in hospital work in the State of Delaware. Miss Sparrow said that for years she has hoped that such a separate building for colored patients under the care of nurses of their own race would be constructed. She said that many deserving girls of the colored race had asked for an opportunity to become nurses and enter the training school.

The unit, as considered, would contain both wards and private rooms for the patients and would be fully equipped with laboratories, operating rooms, sterilization rooms, and diet kitchens, as well as service rooms, clinics, emergency receiving rooms, and accident dispensary rooms.

In accordance with the hospital plans for all additions, particular attention would be devoted to the colored children's ward as well as the maternity ward and delivery rooms.

If the plans are adopted the Delaware Hospital will have the first training school for Negro nurses on the Peninsula.

Acute Glandular Fever of Pfeiffer

In an epidemic of the acute glandular fever of Pfeiffer reported on by CLARA M. DAVIS, Chicago (*Journal A. M. A.*, April 27, 1929), all the infants and one nursemaid in a small nursery were affected. There was wide variation in the severity of the cases, but all conformed closely to the description of Pfeiffer. Lymphocytosis appeared early in the incubation period. Relapses occurred in the usual large percentage of cases. Suppurative complications occurred only in infants with mixed infections. Recovery within four weeks, with a return of the glands to their preepidemic size and condition, was the rule.

BOOK REVIEWS

Diseases of the Thyroid Gland. By Arthur E. Hertzler, M. D., Surgeon, Halstead Hospital. Second Edition. Cloth. Pp. 286, with 159 illustrations. Price, \$7.50. St. Louis: C. V. Mosby Company, 1929.

It is a pleasure to review this second edition of a really fine work on goitre. Dr. Hertzler has converted his "isolation" from a handicap into an opportunity to follow up his goitre work in the most complete and satisfactory manner possible. He sees his patients for years after they leave his clinic. Consequently, his correlation of the clinical history, examination, operation, and pathology is exceptionally complete and logical. Furthermore, he includes all the data that is worth knowing, so that his monograph is all that anyone need read to be up-to-the-minute on the subject. The illustrations are particularly good, especially in the chapter on the operative technique. It is a book that can heartily be recommended.

Diagnostic Methods and Interpretations in Internal Medicine. By Samuel A. Loewenberg, M. D., Asst. Prof. of Clin. Med., Jefferson Medical College. Cloth. Pp. 1032, with 547 illustrations. Price, \$10.00. Philadelphia: F. A. Davis Company, 1929.

This is a book covering the field of diagnostics in internal medicine, from the standpoint primarily of the general practitioner. It is almost encyclopedic in its range, yet does not strike one as being sketchy. The space is allocated in direct proportion to the importance of the various chapters, the heart and lungs being discussed minutely, while the skin, for instance, is given relatively few pages. The style is terse, and the typography facilitates both reading and memorizing. Such unusual subjects as the examination of industrial workers, life insurance examinations, and malingering, receive ample and sensible discussion. There is an exceptionally fine chapter on the interpretation of laboratory findings. The illustrations, with photographs predominating, are well selected; the index, unusually complete, adds materially to the value of the book. We regard this as one of the best books on the subject since Sahli.

TREATMENT OF VARICOSE VEINS OF THE LEGS

A survey of a series of 4,607 cases made by NORMAN J. KILBOURNE, Los Angeles (*Journal A. M. A.*, April 20, 1929), shows positively that the mortality by operative excision of varicose veins in America is one in 250. The mortality by injection cannot be so accurately determined; but a study of 50,000 cases shows that it is less than one in 4,000. Recurrences after operation average 30 per cent, and after injection 6 per cent. Although embolism, phlebi-

tis, ulcer formation and gangrene are rare, no injection should be made until they have been prevented by thorough preliminary study.

VISEROSENSORY PHENOMENA IN ACUTE OBSTRUCTION OF UPPER URINARY TRACT

In thirty-five of the eighty-five patients studied by MEREDITH F. CAMPBELL, New York (*Journal A. M. A.*, April 20, 1929), experimental observations alone were made. The remaining fifty were observed clinically and differential diagnosis included the consideration of upper urinary tract disease. The nature of the surgical lesions was ultimately determined by operation, by roentgenography or by a thorough urologic examination. Of these patients forty presented positive skin signs indicative of upper urinary tract disease and in all of these gross obstruction and evident cause of pain (colic) were demonstrated. Twenty-nine of the latter group gave a history of previous pain in the urinary tract. With seven the present illness was the first attack and concerning the past history of the remaining four there are no data. In most cases skin signs were present when the patient was first seen following the acute attack. In summarizing his results, Campbell found that the subinguinal syndrome of ureteral colic, so called because of lack of a more definite term, may be clinically recognized and elicited as follows: Inspection reveals elevation of the testicle and an unusual wrinkling of the scrotum ipsilateral with the urinary tract involvement in most males. In females, inspection is of no help. Palpation discloses an unusual testicular sensitivity of the same side, and often vasomotor changes are indicated by a slight elevation of the skin temperature of the upper inner thigh triangle. Marked vasomotor changes are indicated by an erythema within the limits of the skin triangle; dermatographia can usually be demonstrated. Coarse sensory stimulation as produced by firmly twisting or pulling the skin over this area reveals a marked cutaneous hyperesthesia when the test is positive. In most instances thermal hyperesthesia is present and may be elicited by the application. He concludes that the clinical application of the viserosensory phenomena affords a simple yet accurate diagnostic aid which, when positive, limits the acute lesion to the upper urinary tract. If too great an interval has elapsed following the acute onset, and the ureteral obstruction has been relieved for some time, the skin sign will be negative. The specific value of the test is augmented by the uniformity and facility with which it is experimentally demonstrable.

EFFECT OF LIVER ON BLOOD SUGAR LEVEL

A study made by HARRY BLOTNER and WILLIAM P. MURPHY, Boston (*Journal A. M. A.*, April 20, 1929), of the effect of liver feeding on the blood sugar indicates that whereas previously liver has been regarded as an unsuitable article of food for diabetic patients because of its glycogen content, it is now known to have a beneficial effect on the blood sugar of these patients. The liver fractions that are effective in the treatment of pernicious anemia have no effect on the blood sugar, whereas certain liver fractions that are ineffective in the treatment of pernicious anemia have an effect on the blood sugar like that of liver. Four patients with diabetes taking liver daily or from three to five times a week have been observed with repeated blood sugar determinations for approximately one year, while in two who were followed for twenty and thirty days it was found that the blood sugar has remained at a constantly lower level than previous to liver therapy. These observations suggest that liver contains a blood sugar reducing substance active when taken by mouth, nontoxic, and with an effect on the blood sugar concentration similar to that obtained with insulin. It is difficult to estimate the quantity of liver that will replace a known amount of insulin, but the authors feel that 130 Gm. of liver will have an effect on the blood sugar of diabetic patients equal to that of from 10 to 15 units of insulin.

